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POST-TREATMENT EVALUATION OF SEED AND CONE INSECT CONTROL PROJECT
AT STUART ORCHARD, POLLOCK, LOUISIANA, 1980

by

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INTRODUCTION

The Alexandria Field Office, Forest Pest Management, conducted a post-treatment evaluation of the insect control project at the Stuart Orchard, Pollock, LA, according to FSM 2155.3 during 1980.^{2/}

The purpose of the evaluation was to determine the effectiveness of the project in controlling coneworms and seedbugs.

METHODS

Except for a 1 1/2 acre check area in the Louisiana loblolly seed source, the entire orchard was sprayed by a FMC orchard sprayer (mist blower type) with Guthion[®]^{3/} 2S (11.4 1/379 l or 24 pts/100 gal) in water at the rate of 7.57 liters or 2 gallons per tree (Fig. 1). The sprayer was pulled down the middle of every other east-west row so trees received spray from one side each time. Four applications were made, one each near the first of April, May, June, and August.

At harvest, 5 cones were selected from each of 5 randomly selected trees in the treated area and 5 cones from each of 5 randomly selected trees in the untreated area in the Louisiana loblolly seed source. All seeds that would shake lose by pounding cones on a table were x-rayed and categorized as follows: sound, empty, seedbug damaged, seedworm damaged and malformed.

All cones from 3 trees in the treated area of the Louisiana loblolly source were counted and assessed for coneworm damage.

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^{2/} Appreciation is given to Donald Wilmore, Seed Orchard Manager, and staff for collection of cones for analysis.

^{3/} Use of trade names does not constitute an endorsement by the USDA Forest Service for a product; similar materials with different names may be equally effective.

ISOLATION ZONE

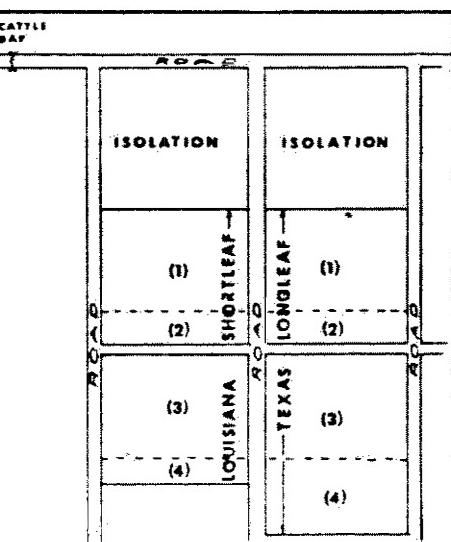
ZONE

ISOLATION ZONE

20	3	4	5	6	7	1
19	10	9	8			
	LOUISIANA LOBLOLLY				7	6
16	13	14	13		12	11
5	4	3	2	1	LOUISIANA SLASH	1
10	9	8	7	6	4	3
28	5	4	3		2	1
25	10	9	8		7	6
	TEXAS LOBLOLLY					
16	15	14	13		12	11
23	22	21	20		19	18
15	14	13				
24	TEXAS SHORTLEAF			12		11
21	20	19	18		17	16
6	5	4	3		2	1
	LOUISIANA LONGLEAF					
12	11	10	9		8	7
18	17	16	15		14	13

300' 500'
SCALE

AYOUT and
VICINITY MAP



Check

Figure 1. Map of Stuart Orchard, Pollock, Louisiana, showing block layout and check area in 1980.

RESULTS

Results show very little difference between treated and untreated trees for seed damage (Table 1). Ninety-four sound seeds per cone were found in the Guthion treated area and 108 in the check area. Numbers of sound seeds per cone for the Guthion treatment were 57 percent better than the Guthion treatment in 1976 and were much better than any of the treatments from 1976 to 1978 (Overgaard and Wallace, 1981). Seed efficiency was 70 percent for the Guthion treatment and 75 percent for the check. According to David Bramlett, Tree Physiologist, Southeastern Forest Experiment Station, Macon, Georgia, these seed efficiencies were probably close to the biological maximum possible for loblolly pines.

Coneworm damage was 10 percent on the three trees in the treated area. Visual observations showed cone damage was about the same on the check area as the treated area.

DISCUSSION

The reason for the small difference in cone and seed damage between treated and untreated areas was probably due to low coneworm and seedbug populations on the orchard during 1980. The check area was a small portion of the orchard and probably received some benefit of the treatment of the rest of the orchard. Also, the check area as well as the treated area received Guthion spray during 1979. This would have decreased the number of first year aborted ovules and thereby increased yields in both the check and spray treatment in 1980. For an unknown reason cone opening was slightly less in the treated area than the check. This may have accounted for the slightly increased seed production per cone in the check area.

Because of low insect populations, insecticide treatments were not needed at Stuart Orchard in 1980. However, treatments, being largely preventative, will have to be continued according to damage peaks in previous years until techniques for predicting future population and damage trends are developed.

Approximately \$52,000 was spent on insect control efforts on the orchard during 1980. If prediction techniques were available, this money would have been saved.

RECOMMENDATIONS

1. Continue spraying with Guthion 2S (24 pts/100 gal) at the rate of 2 gallons per tree. The following times are suggested: 1) mid-March to early April or as soon as conelets are closed, 2) mid-May, 3) late August (Overgaard and Wallace, 1981).

Table 1. Seed data, Louisiana loblolly, Stuart Orchard, Pollock, Louisiana, 1980.

Treatment	No. sound seeds/cone	PERCENT				
		Sound seeds	Empty seeds	Seedbugs	Seedworms	Malformed
Check	108	92	5	2	1	0
Guthion	94	82	16	2	1	0

REFERENCES

Overgaard, Neil A. and Huey N. Wallace.

1981. Monitoring of cone and seed insect damage to loblolly pine at the
Stuart Seed Orchard, Pollock, Louisiana. USDA Forest Service, S&PF,
Southeastern Area, Forest Pest Management, Alexandria, Field Office.
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